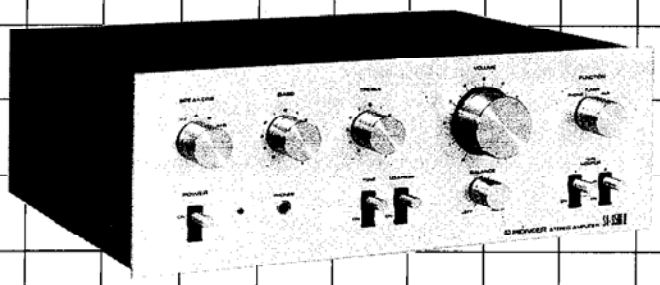
STEREO AMPLIFIER

SA-6500II

OPERATING INSTRUCTIONS

S
HG



SA-6500II are designed to operate 220V or 240V (HG model) main and 110V, 120V, 220V or 240V (S model) main. Before turning on the power, please confirm the line voltage setting indicated on the rear of your unit corresponds to the supply voltage in your area; if not, change the setting as described in IMPORTANT—LINE VOLTAGE on page 12.

PIONEER®

FEATURES

Power Amplifier Design Stresses Superb Tone and Minimized Distortion

PNP differential amplifier first stage, all stages direct coupled pure complementary OCL circuit delivers effortless and beautiful stereophonic sound.

Continuous Power Output is 30 watts* per channel, min. RMS, at 8 ohms or 4 ohms from 20 Hertz to 20,000 Hertz with no more than 0.1% total harmonic distortion.

Both vigorous and delicate musical passages are reproduced with exquisite clarity.

Differential 1st Stage 4 Stage Direct Coupled Equalizer

Due to the extremely minute signals involved, utmost precision is demanded in the phono equalizer section. Every effort must be made to obtain reduced distortion and high signal-to-noise ratio. To fulfill these requirements, the SA-6500II utilizes a high performance low noise IC which incorporates a four stage direct coupled circuit with a differential amplifier first stage in the equalizer section. Since open gain characteristics of the 1st stage differential amplifier are unusually fine, by applying thorough negative feedback (NFB), low distortion, high Signal-to-Noise ratio and high stability are obtained covering a wide frequency band.

Enjoy Full Record Performance

Wide dynamic range and precise equalization curve result from the strict quality control program used for selecting the equalizer elements. Frequency response deviation, which governs record playback, becomes held to within ±0.3dB. Since high voltage is supplied by the balanced positive and negative power supply system, with respect to 2.5 mV sensitivity, maximum phono input becomes 200 mVrms (at 1 kHz, 0.1% T.H.D.). All the rich grandeur of the recorded sound can be reproduced with plenty of spare margin.

11 Point Click Stop Tone Controls

Low and high frequency tones can be accurately adjusted to match phono cartridge and speaker system frequency characteristics, listening room acoustics, or your personal tastes. The 11 point click stop bass and treble controls allow precise tone adjustments, plus easy return to preferred settings for particular program sources. A tone defeat (TONE) switch is also provided for instantly bypassing the tone control circuits to obtain a flat response. This is a highly convenient function for such applications as evaluating tone control effectiveness.

Protection and Muting Circuits for Reliability and Listening Comfort

Fused, electronic protection circuit includes a triac device and operates to protect power amplifier and speaker systems in event of malfunction. Surge noise when operating the power switch is also prevented by the built-in muting circuit.

Versatile Dual Tape Facilities

Two sets each of stereo tape recording jacks, tape playback jacks and tape monitor switches are provided. These allow connection of two tape decks for convenient tape duplication, editing and transfer of open reel recordings to easily handled cassettes.

** Measured pursuant to Federal Trade Commission's Trade Regulation rule on Power output Claims for Amplifiers.*

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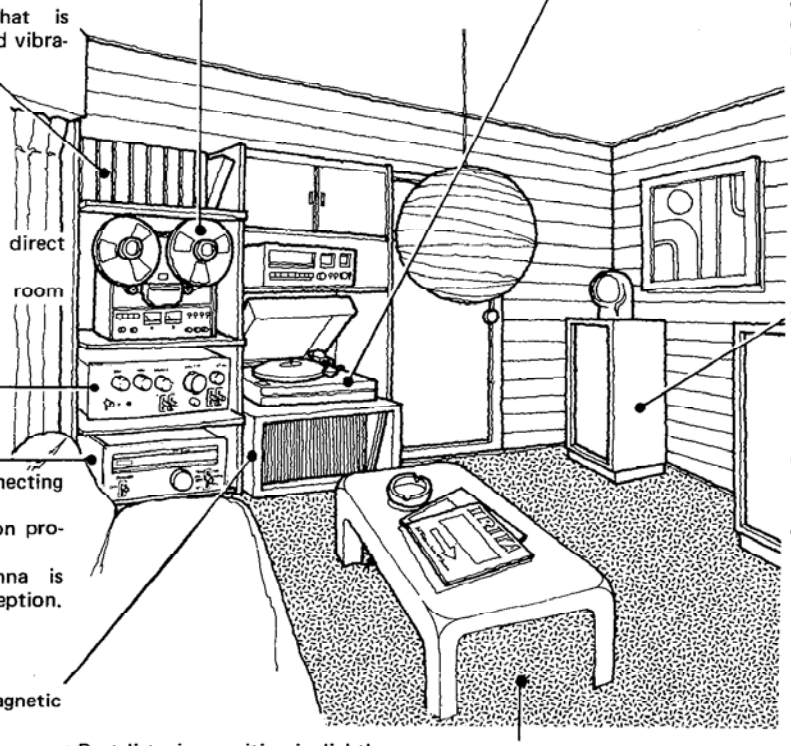
STEREO SYSTEM COMPOSITION



Tape deck
- Be sure to install reel clamps when operating vertically.
- Protect with dust cover when not in use.

Turntable
- Protect from vibrations.
- Keep dust cover closed whenever possible.

Cabinet
- Stable construction that is durable under weight and vibration.

Speaker connections
Check that speaker cord has sufficient current handling capacity. Avoid using longer cord lengths than necessary.

Thick curtains
- Shield equipment from direct sunlight.
- Aid to reduce listening room reflections and resonance.

SA-6500II

Tuner
- Do not use longer connecting cords than necessary.
- Install antenna in direction providing best reception.
- An outdoor FM antenna is recommended for FM reception.

Storage case
- Store records vertically.
- Protect tapes from magnetic fields.

Speaker system
- Rear and side panels of left and right speakers should be at the same conditions. (Placing with rear panel against a wall improves bass.)
- Install speakers so that vibrations are not transferred directly to the floor.
- Employ stands or concrete blocks with bookshelf type speakers.

- Best listening position is slightly to the rear of the apex of an equilateral triangle formed with the left and right speakers.
- Furniture materials and placement can affect tone.

Carpet
- Improves sound absorption.

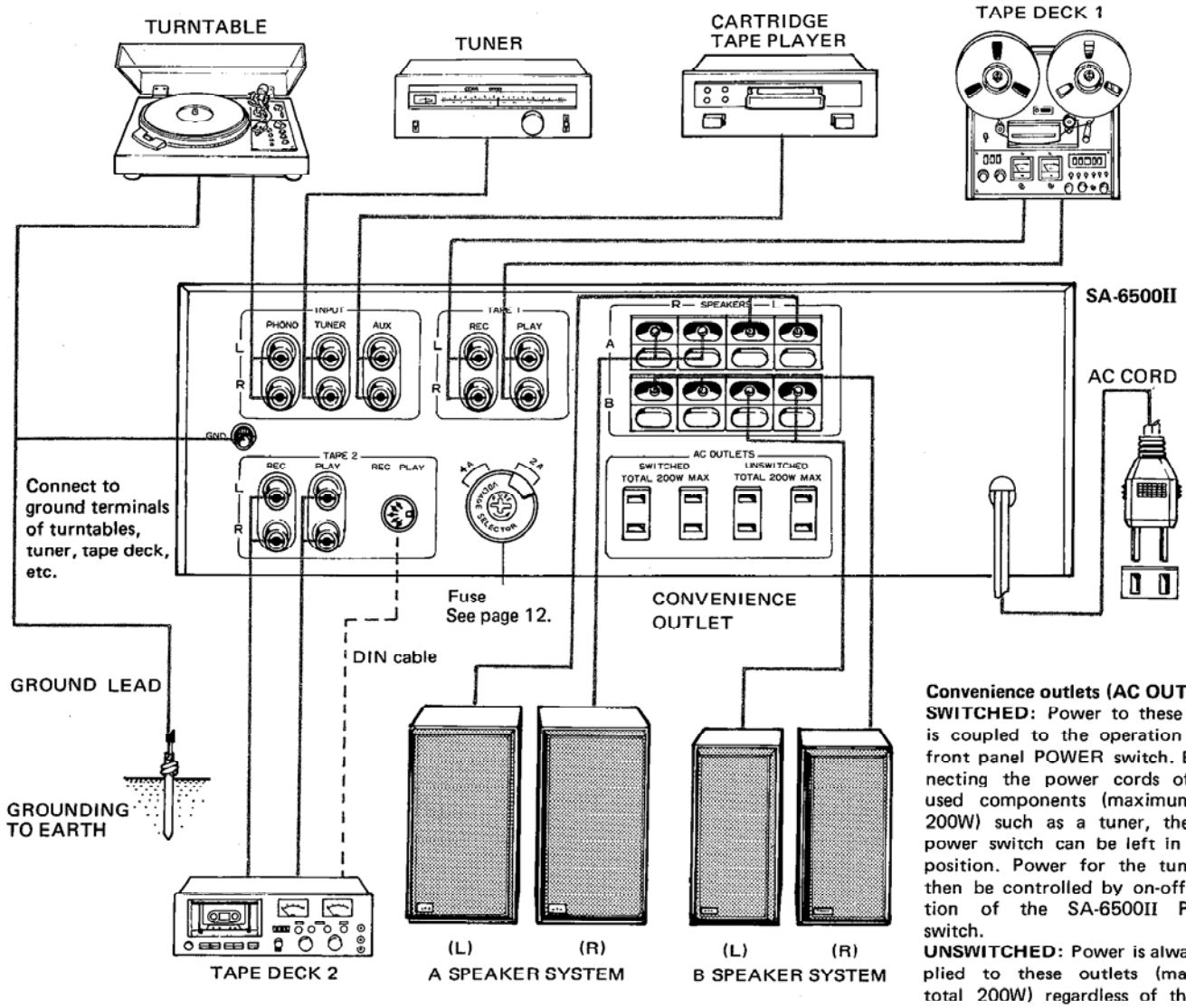
INSTALLATION CAUTIONS

In order to ensure long term top performance, do not install the SA-6500II in locations such as the following:

Locations to be avoided	Detrimental effects
• Direct sunlight, radiators or other sources of heat.	• Accumulated effects of internal and external heat can reduce thermal dissipation efficiency of power amplifier and lead to component deterioration. In some cases heating may also prevent stable operation.
• Poorly ventilated, humid or dusty locations.	• Can cause faulty connection or corrosion of input and output terminals. Humidity and moisture in particular may reduce insulation performance and lead to current leakage or component overheating.
• Unstable supports that are not level or subject to vibration.	• May adversely affect precision circuit components. Weight can also pose a hazard in regions subject to seismic activity.
• Locations where alcohols, insect spray or flammable material is used or stored.	• In addition to fire hazard, some materials may contribute to corrosion or mar finish of equipment.

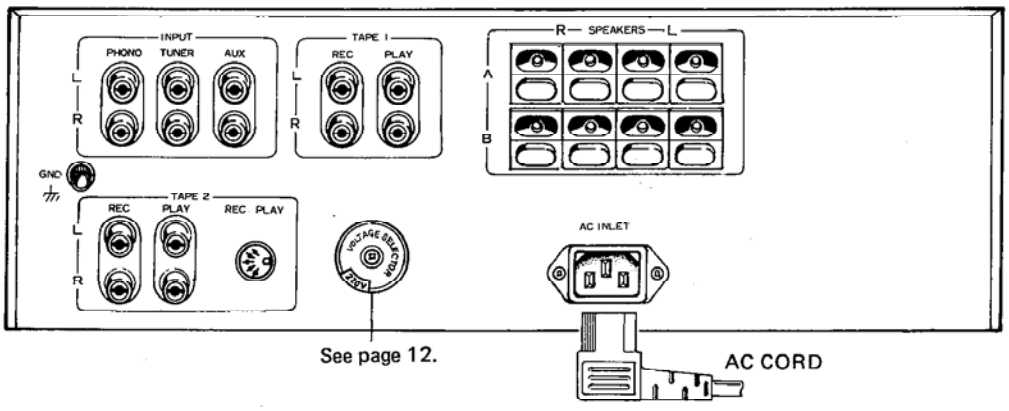
CONNECTION DIAGRAM

Four Line Voltage (110V, 120V, 220V, 240V) Model



Convenience outlets (AC OUTLETS)
SWITCHED: Power to these outlets is coupled to the operation of the front panel POWER switch. By connecting the power cords of often used components (maximum total 200W) such as a tuner, the tuner power switch can be left in the on position. Power for the tuner will then be controlled by on-off operation of the SA-6500II POWER switch.
UNSWITCHED: Power is always supplied to these outlets (maximum total 200W) regardless of the front panel POWER switch position.

Two Line Voltage (220V, 240V) Model



CONNECTIONS

SPEAKER SYSTEMS

Two sets of stereo speaker systems (A and B) can be connected to the SA-6500II. Normally employ the SPEAKERS A terminals when connecting only one set of speaker systems.

NOTE:
If two sets of speaker systems are used simultaneously, the impedance of each speaker system must be 8ohms or greater. Malfunction can be incurred if a speaker of less than 8ohms impedance is connected in this case.

As shown in Fig. 1, connect the right channel speaker (as viewed from listening position) to the R terminals and the left channel speaker to the L terminals. Observe plus (+: red) and minus (−: black) polarities of SPEAKERS terminals and the terminals on rear of speaker systems. Be sure to connect plus to plus and minus to minus.

Speaker Cord Connection

1. As shown in Fig. 2, strip about 10mm of the insulation from the end of the speaker cord. If the conductor is stranded, twist the strands together to prevent spreading.
2. While holding the terminal button depressed, insert the end of the cord into the terminal hole.
3. Release the button and confirm that cord is firmly clamped in terminal.

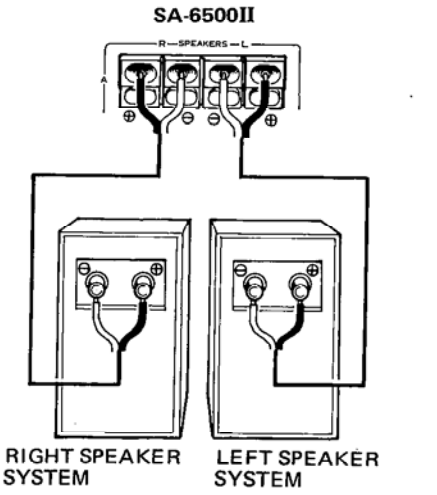


Fig. 1

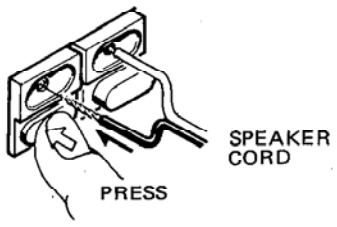


Fig. 2

TURNTABLE

Connect the output cord of a turntable equipped with a moving magnet (MM) type cartridge to the PHONO jacks. If the turntable is provided with a ground lead, connect this lead to the GND terminal on the rear of the SA-6500II.

NOTES:
- *In addition to an MM type cartridge, an induced magnet (IM) type cartridge can be employed. In the case of a moving coil (MC) type cartridge, a special boosting transformer or head amplifier becomes required.*
- *Select turntable installation site carefully. If it is too close to the speakers or subject to vibration, feedback howling can occur, preventing use at high volumes.*

TUNER

Connect the output of an AM/FM stereo tuner to the TUNER jacks.

AUX JACKS

Employ for connecting auxiliary source component. A TV sound tuner, cartridge tape player, second tuner or other source can be connected to these jacks.

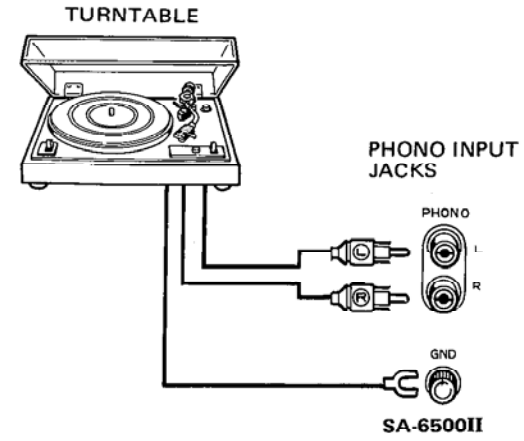


Fig. 3

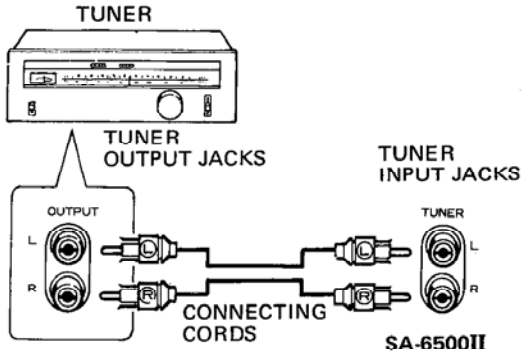


Fig. 4

FRONT PANEL FACILITIES

POWER SWITCH

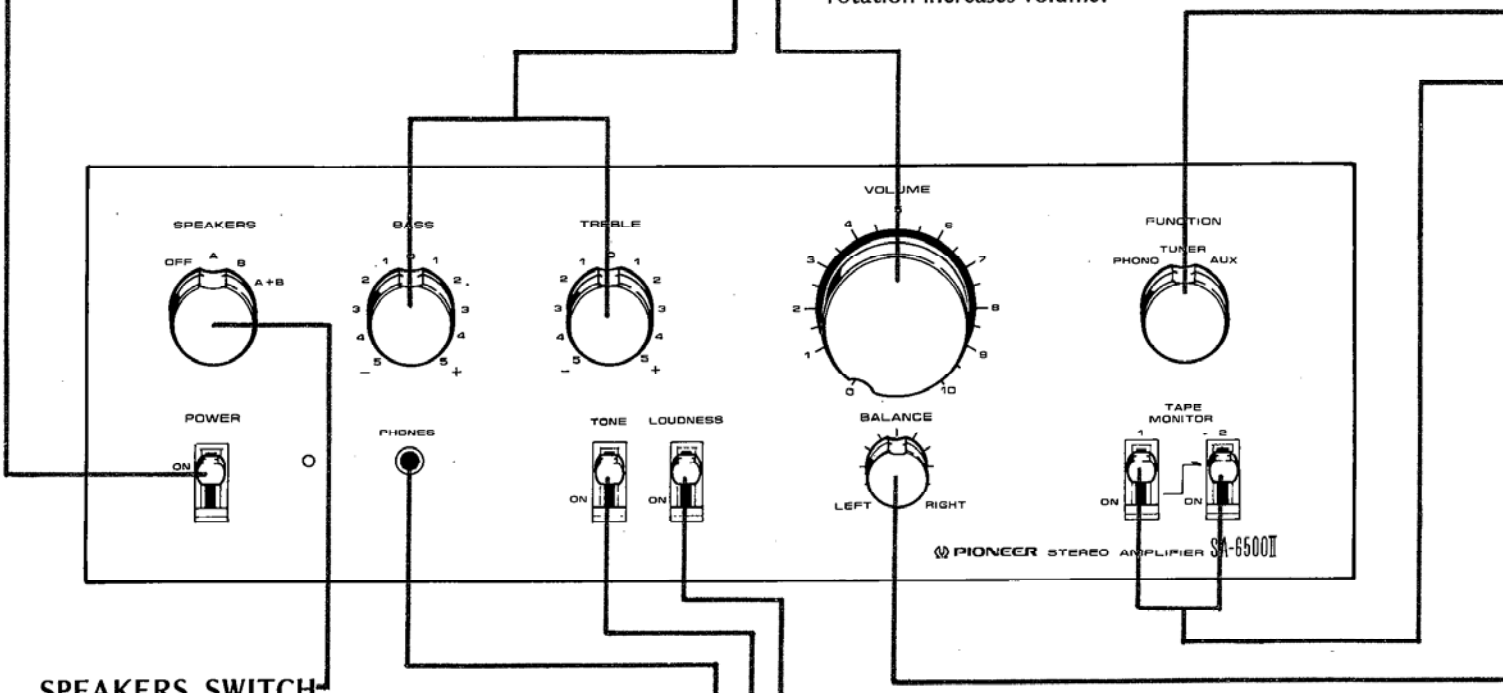
Set to ON position to energize SA-6500II. After setting to ON, there is a brief delay before sound is obtained. This is due to the operation of the muting circuit which prevents noise when the POWER is switched. This function does not indicate difficulty and normal operating condition is attained in a few seconds.

BASS AND TREBLE CONTROLS

Controls for adjusting low and high frequency tone. With the TONE switch in the ON position, turn controls clockwise to enhance low or high frequencies and counter-clockwise to attenuate their respective frequency ranges.

VOLUME CONTROL

Adjusts volume from speakers and headphones. Clockwise rotation increases volume.



SPEAKERS SWITCH

Selects speaker system operation.

OFF: Sound not obtained from speakers (when using headphones).

A: Sound obtained from speakers connected to A speaker terminals.

B: Sound obtained from speakers connected to B speaker terminals.

A + B: Sound obtained from speakers connected to both A and B speaker terminals.

NOTE:
When listening with headphones or to temporarily interrupt the speaker sound, set switch to OFF or to an unused speaker position.

PHONES JACK

When listening with stereo headphones, connect them to this jack.

NOTE:
Set SPEAKERS switch to OFF when listening only with headphones.

LOUDNESS SWITCH

When listening at low volume settings, set switch to ON to enhance low and high frequencies. The response of the human ear to sound differs according to loudness. This switch compensates for this effect at low volumes.

TONE SWITCH

In the ON position, tone adjustments can be performed with the BASS and TREBLE controls. When set to the upper (OFF) position, the tone control circuits are disengaged and frequency response is flat. This function is convenient for checking cartridge and speaker tone quality and listening room acoustics.

FUNCTION SWITCH

Selects desired playback program source.

PHONO: To play records on a turntable connected to the PHONO jacks.

TUNER: To listen to broadcasts with a tuner connected to the TUNER jacks.

AUX: To play a component connected to the AUX jacks.

TAPE MONITOR (1 & 2) SWITCHES

Employ for tape playback or to monitor a recording in progress.

1: Playback or monitoring of a tape deck connected to the TAPE 1 (REC & PLAY) jacks.

2: Playback or monitoring of a tape deck connected to the TAPE 2 (REC & PLAY) jacks.

NOTES:

- *Be sure to set switches to upper (OFF) position when playing records or listening to broadcasts.*
- *When recording with two tape decks simultaneously, do not operate the TAPE MONITOR 1 switch as this will interrupt the signal to the TAPE 2 deck (see Fig. 8).*

BALANCE CONTROL

Adjusts relative left and right channel volume balance between speaker systems and headphones. If the right channel volume is insufficient, turn the control clockwise from center. Conversely, if the left channel volume is insufficient, turn the control counter-clockwise from center.

Protection Circuit

After setting the power switch to ON, there is a delay of about 2 seconds before sound is obtained from the speakers. This is due to the muting circuit which functions to prevent annoying surge noise when the power supply is operated.

OPERATION

Before switching on the power, set the various controls as follows:

- Turn VOLUME control fully counter-clockwise.
- Set BALANCE control to center of rotation.
- Set TAPE MONITOR (1 & 2) switches to upper position.
- When set TONE switch to ON, tone can be adjusted with the BASS and TREBLE controls.
- Set BASS and TREBLE controls to center of rotation.
- Set SPEAKER switch to a position corresponding to the connected speaker system terminal (A or B).

PLAYING RECORDS

Before Playing Records

- When playing a record, be sure to lower the stylus gently onto the record surface. At this time, it is suggested to set the VOLUME control to minimum or SPEAKERS switch to OFF in order to avoid a noise burst as the stylus contacts the record.
- Use care not to subject turntable to vibration while a record is being played. This can cause the stylus to jump the grooves and possibly damage the record. Also avoid turning off the power while the stylus is in contact with the record.

1. Set FUNCTION switch to PHONO.
2. Operate turntable and play the record.
3. Adjust VOLUME, BASS and TREBLE controls for desired volume and tone.

EMPLOYING TUNER (AM OR FM RECEPTION)

Proper antenna installation is important for best signal reception with tuner.

1. Set FUNCTION switch to TUNER.
2. Operate tuner and tune in desired station.
3. Adjust VOLUME, BASS and TREBLE controls for desired volume and tone.

PLAYING AUX COMPONENTS

An auxiliary component (tape cartridge player, TV sound tuner, etc.) can be connected to the AUX jacks and played through the stereo system.

1. Set FUNCTION switch to AUX.
2. Operate component.
3. Adjust VOLUME, BASS and TREBLE controls for desired volume and tone.

TAPE DECK CONNECTIONS

Two sets of tape recording (TAPE 1 & 2 REC) jacks and tape playback (TAPE 1 & 2 PLAY) jacks are provided on the SA-6500II. Use tape deck accessory connecting cords to connect the jacks as follows. Upper jacks are for the left (L) channel and lower for the right (R) channel.

Recording Connections: Connect the TAPE 1 REC jacks to the recording input (LINE INPUT) jacks of the tape deck.

Playback Connections: Connect TAPE 1 PLAY jacks to the playback output (LINE OUTPUT) jacks of the tape deck.

NOTE:
A second tape deck can be connected to the TAPE 2 REC & PLAY jacks in the same manner.

Use of Record/Playback DIN Connector

If the tape deck used has a 5p DIN type socket for record/playback, connecting the tape deck to the TAPE 2 REC/PLAY socket by means of a DIN cable (purchased separately) will provide simultaneous connection for both recording and playback. If the DIN cable is used, the Pin connectors at TAPE 2 REC and PLAY jacks should be removed (See Fig. 6).

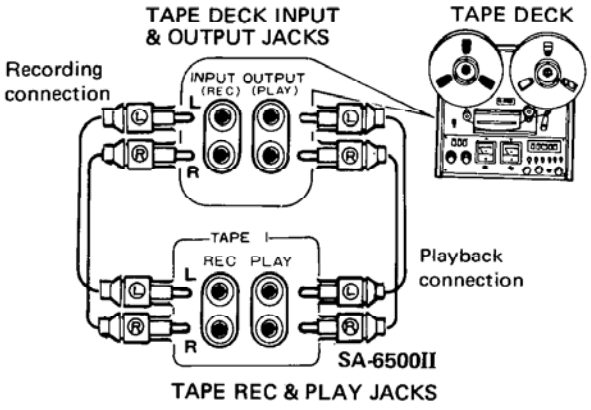


Fig. 5

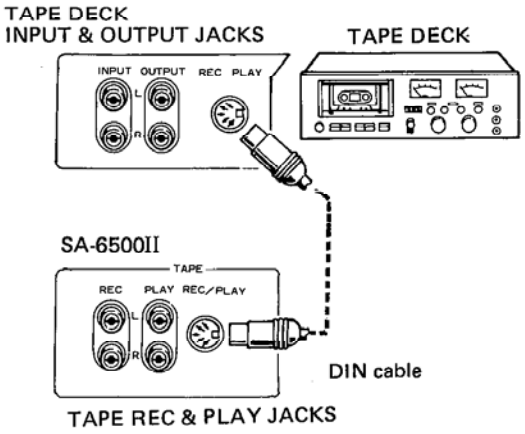


Fig. 6

USING TAPE DECK

TAPE PLAYBACK

Steps for playback of a prerecorded tape on the tape deck.

1. If the tape deck is connected to the TAPE 1 jacks, set the TAPE MONITOR 1 switch to ON. Set the TAPE MONITOR 2 switch to ON if the tape deck is connected to the TAPE 2 jacks.
2. Operate tape deck and play tape.
3. Adjust VOLUME, BASS and TREBLE controls for the desired volume and tone.

NOTES:
1. *Be sure to return the TAPE MONITOR switch to upper position when not playing tape.*
2. *Tape playback is unaffected by the position of the FUNCTION switch.*

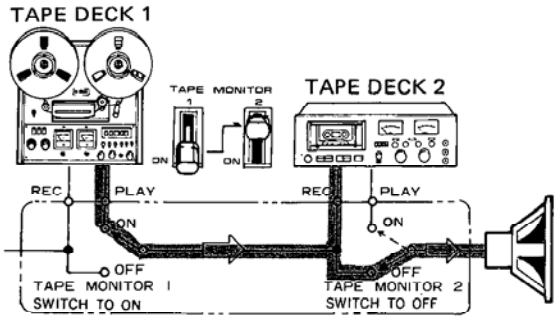


Fig. 7

TAPE RECORDING

A program source (records, FM broadcasts, etc.) can be recorded with tape deck (Fig. 8).

1. Set FUNCTION switch to the source to be recorded (PHONO, TUNER, etc.).
2. Operate program source.
3. Adjust recording levels with the controls of the tape deck and proceed with recording.

Monitoring Recording Conditions

If the tape deck is equipped with monitoring facilities (3 heads), recording conditions can be monitored from the speakers by setting the TAPE MONITOR 1 (or 2) switch to ON. Both recording and playback connections must be completed in this case.

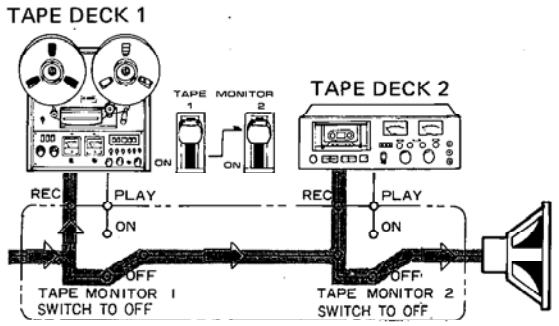


Fig. 8

TAPE DUPLICATION AND EDITING

By employing two tape decks, the desired portions only of a previously made recording can be edited onto a second tape. A personal tape library can be acquired in this manner. Duplication can also be performed between open reel and cassette tape decks.

1. Connect two tape decks to the TAPE 1 and 2 jacks as shown in Fig. 9.
   - To record with tape deck connected to the TAPE 2 jacks from a tape deck connected to the TAPE 1 jacks.
2. Insert prerecorded tape in tape deck 1 and blank tape in tape deck 2.
3. Operate tape deck 1 for playback and tape deck 2 for recording.
4. To check recording conditions, set TAPE MONITOR 2 switch to ON.

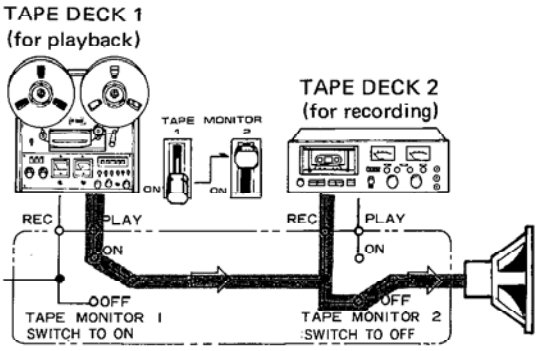


Fig. 9

SUGGESTIONS FOR BETTER RECORDINGS

Conditions external to the tape deck play an important role in the quality of a recording. Check the following points before proceeding with the recording.

Inspect Connections

Check that connections are correct and secure. Improper or loose connections can produce noisy recordings.

Use an Outdoor FM Antenna

Tune in an FM station several minutes before the start of the desired program in order to allow the tuner time to warm up and stabilize. A properly installed outdoor FM antenna is recommended for better results.

Clean Records and Stylus

Be sure to use a good quality record cleaner to clean the records and a soft stylus brush to clean the stylus before recording.

Separate from Noise Sources

Note carefully possible causes of noise external to the recording equipment. These include such items as buzzers, electric shavers, hair dryers, refrigerator thermostats and similar electrical noise sources. Avoid using such appliances while recording is in progress.

SPECIFICATIONS

Semiconductors

ICs 2
Transistors 25
Diodes 16

Amplifier Section

Circuitry
Power amplifier . . . . . 1st stage differential amplifier direct-coupled OCL
Equalizer amplifier . . . . . 1-stage differential amplifier 3-stage direct-coupled
Control amplifier. . . . . 2-stage direct-coupled

Continuous Power Output of 30 watts* per channel, min. RMS, at 8 ohms or 4 ohms from 20 Hertz to 20,000 Hertz with no more than 0.1% total harmonic distortion.

Total Harmonic Distortion at 20Hertz to 20,000Hertz from AUX.
Continuous rated power output 0.1%
15watts per channel power output, 8ohms 0.05%
1watt per channel power output, 8ohms 0.05%
Intermodulation Distortion
Continuous rated power output 0.1%
15watts per channel power output, 8ohms 0.05%
1watt per channel power output, 8ohms 0.05%
Speakers . . . . . A, B, A + B
Headphones . . . . . Low impedance
Damping Factor (20Hertz to 20,000Hertz, 8ohms) . . . 30
Input (Sensitivity/Impedance)
PHONO 2.5mV/50kohms
TUNER 150mV/50kohms
AUX 150mV/50kohms
TAPE PLAY 1 . . . . . 150mV/50kohms
TAPE PLAY 2 . . . . . 150mV/50kohms
TAPE PLAY 2 (DIN connector). . . . 150mV/50kohms
PHONO Overload Level (T.H.D. : 0.1%): 200mV (1kHz)
Output (Level/Impedance)
TAPE REC 1 . . . . . 150mV
TAPE REC 2 . . . . . 150mV
TAPE REC 2 (DIN connector) 30mV/80kohms
Frequency Response
PHONO (RIAA Equalization) . . . . . 20Hz to 20,000Hz ±0.3dB
TUNER, AUX, TAPE PLAY . . . . . 10Hz to 40,000Hz $^{+0}_{-1}$dB
Tone Control
BASS . . . . . +9dB, −8dB (100Hz)
TREBLE . . . . . +8dB, −6dB (10kHz)
Loudness Contour (Volume control set at −40dB position) . . . . . +8dB (100Hz), +5dB (10kHz)
Hum and Noise (IHF, short-circuited, A network, rated power)
PHONO 72dB
TUNER, AUX, TAPE PLAY 93dB

Miscellaneous

Power Requirements
. . . . . AC 220V, 240V (Switchable) 50/60Hz
or 110V, 120V, 220V, 240V (Switchable) 50/60Hz
Power Consumptions
. . . . . 300W Max.; 2-line voltage model only
90W; 4-line voltage model only
AC Outlet . . . . . Switched; 2, Unswitched; 2 (4-line voltage model only)
Dimensions . . . . . 380(W) x 139(H) x 308(D)mm
15(W) x 5-1/2(H) x 12-1/8(D)in.
Weight. . . . . Without Package: 7.6kg (16lb 12oz)
With Package: 8.6kg (19lb)

Furnished Parts

Operating Instructions 1
Fuses . . . . . 2A; 1, 4A; 1 (4-line voltage model only)

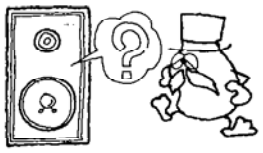
* *Measured pursuant to Federal Trade Commission's Trade Regulation rule on Power Claims for Amplifier.*

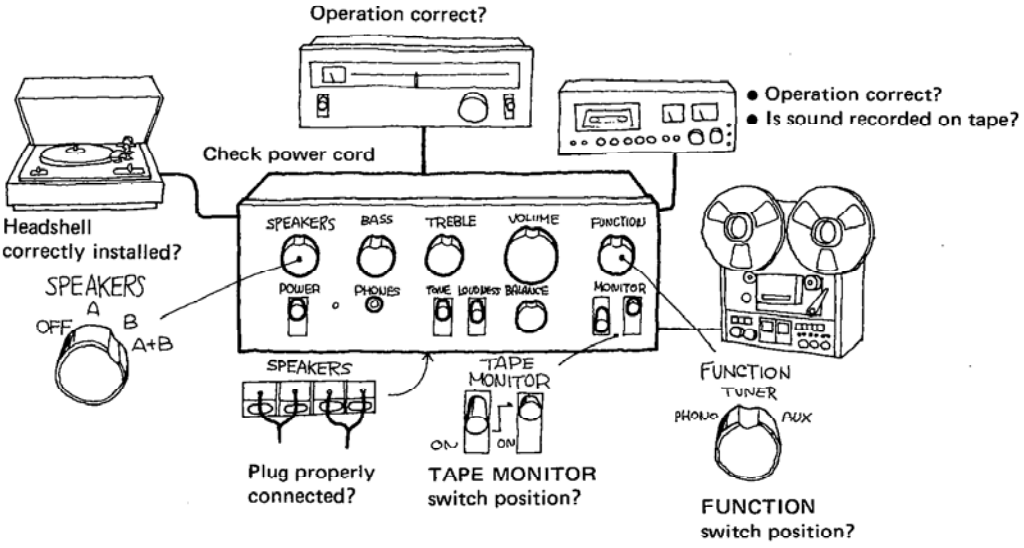
NOTE:
Specifications and the design subject to possible modification without notice due to improvements.

CONDITIONS FREQUENTLY MISTAKEN FOR MALFUNCTION

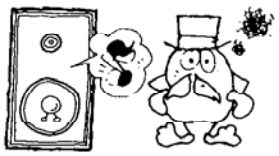
Most cases of operating difficulty can be attributed to simple causes, such as faulty connections or incorrect operation. If the problem cannot be corrected with reference to the following chart, turn off the power and contact your nearest Pioneer Authorized Service Center.

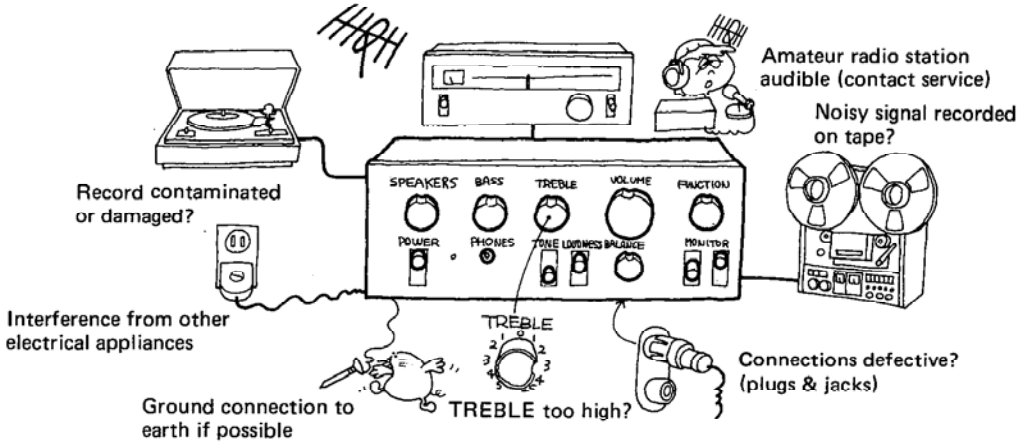
Sound not obtained



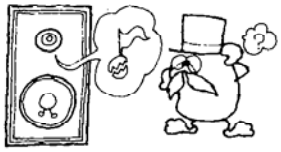


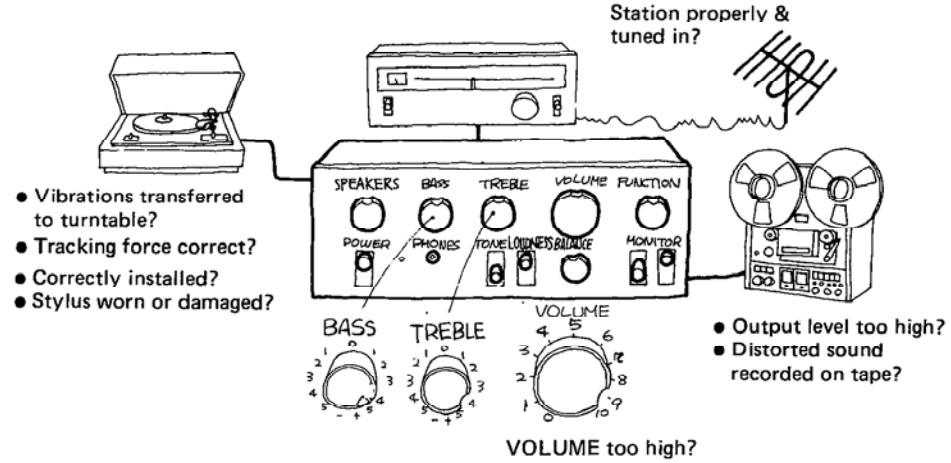
Excessive noise




Amateur radio station audible (contact service)
Noisy signal recorded on tape?
Record contaminated or damaged?
SPEAKERS BASS TREBLE VOLUME FUNCTION
POWER PHONES TONE LOUDNESS BALANCE MONITOR
Interference from other electrical appliances
TREBLE
Ground connection to earth if possible
TREBLE too high?
Connections defective? (plugs & jacks)

Sound distorted





IMPORTANT—LINE VOLTAGE

These operating instructions pertain to both 220V—240V selectable (HG) models and 110V—120V—220V—240V selectable (S) models. The LINE VOLTAGE SELECTOR switch has been set according to the local AC power line supply in the area of use. Before operating your unit, be sure to confirm that this switch has been set properly.
If necessary to change the switch setting, perform according to the steps below.

S MODELS (110V—120V—220V—240V)

1. Use Phillips screwdriver to unscrew fuse cap, then take out fuse and SELECTOR plug (Fig. A).
2. Reinstall the SELECTOR plug so that its cut out section exposes the voltage indication of the SELECTOR socket which corresponds to your household AC power line.
3. Refer to table and install replacement fuse (provided as accessory).
4. Insert fuse in fuse cap, then install cap to plug and tighten.

HG MODELS (220V—240V)

1. Use Phillips screwdriver to loosen mounting screw, then remove SELECTOR plug (See Fig. B).
2. Reinstall the SELECTOR plug with its cut out section exposing the correct voltage indication.
3. Insert and tighten mounting screw.

S model

TABLE

VOLTAGE	FUSE
110V, 120V	4A
220V, 240V	2A

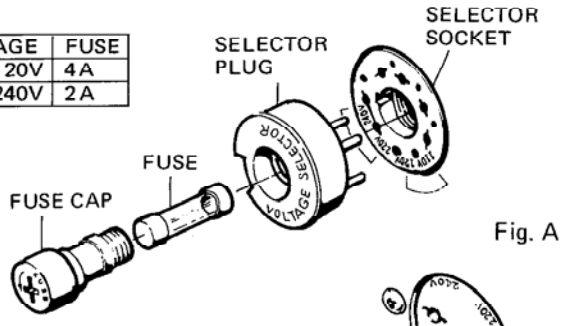


Fig. A

HG model

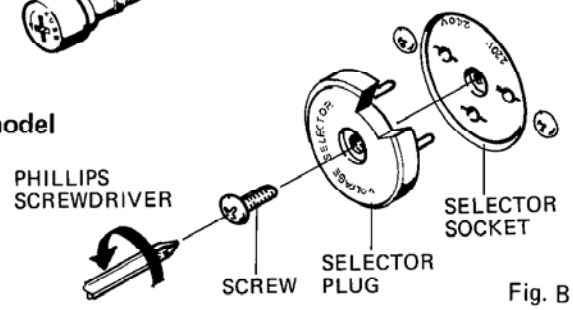


Fig. B

FOR USE IN UNITED KINGDOM OR AUSTRALIA

CAUTION 240V

Mains supply voltage is factory adjusted at 240 volts.

WARNING

THIS APPARATUS MUST BE EARTHED.

IMPORTANT

The wires in this mains lead are coloured in accordance with the following code:

Green-and-Yellow: Earth
Blue: Neutral
Brown: Live

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug proceed as follows.
The wire which is coloured green-and-yellow must be connected to the terminal in the plug which is marked by the letter E or by the safety earth symbol ⏚ or coloured green or green-and-yellow.
The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured blue or black.
The wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured brown or red.
The power cord should be connected last, make sure that the power switch is off. First insert the female appliance connector of the mains cord into the AC INLET, then plug the cord to the wall socket. Be sure the appliance connector is fully inserted into the AC INLET. Unplug the set from the wall socket when it is not be used for an extended period of time.

FOR YOUR SAFETY

1. Insert this plug only into effectively earthed three-pin plug-socket outlet.
2. If any doubt exists regarding the earthing, consult a qualified electrician.
3. Extension cords, if used, must be three-core correctly wired.

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